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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,367	02/15/2002	O'Hagan Kenneth	031616.0003	8848

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EXAMINER

FILE, ERIN M

ART UNIT	PAPER NUMBER
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2611

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,367

Applicant(s)

KENNETH, O'HAGAN

Examiner

Erin M. File

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/7/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-16, 19-24, 27-33, 35, 37-39, 45, 47, 49 and 52 is/are rejected.
- 7) ☒ Claim(s) 11, 17, 18, 25, 26, 34, 36, 40-44, 46, 48, 50 and 51 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 2, 4-9, 13-16, 20, 23, 28-33, 35, 37, 38, 39, 43, 45, 47, 49, and 52 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 7-9, 13-15, 32, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Agrawal (U.S. Patent No. 6,134,215).

Claims 7, 9, 14, Agrawal discloses encoding signal $s(t)$ with orthogonal codes $w_i(t)$ (fig. 2A, 202) and then spreading the encoded signal with a pseudo random (PN) spreading signal (204). Further Agrawal discloses the use of a PN spreading code of 1,024 bits (col. 8, line 1). The orthogonal Walsh function is of length 4 (col. 5, lines 30-40). PN spreading code of length 1,024 is an integer multiple of the Walsh function of length 4. **Claims 8, 13, 35**, Agrawal further discloses differential encoding in the form of Quadrature phase shift keying (QPSK) encoding (fig. 4A, 300).

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Claims 15, 32, Agrawal discloses modulating the data by a quadrature phase shift keying spreader (fig. 4A, 300), and further transmitting the signal (410A).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal (U.S. Patent No. 6,134,215).

Claim 12, Although Agrawal discloses differential encoding in the form of Quadrature phase shift keying (QPSK) differential encoding, but fails to disclose binary phase shift keying (BPSK) modulation. However, BPSK is actually a reduced, simpler form of QPSK modulation. For this reason it would be obvious to one skilled in the art at the time of invention to use BPSK in place of QPSK modulation in Agrawal's invention.

6. Claims 1-6, 28-33, 37, 38, 43, 45, 47, 49, 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal (U.S. Patent No. 6,134,215) in view of Ahn et al. (U.S. Patent No. 6,385,187).

Claims 1, 2, 4-6, 28-31, 33, 37, 38, Agrawal discloses encoding signal $s(t)$ with orthogonal codes $w_i(t)$ (fig. 2A, 202) and then spreading the encoded signal with a pseudo random (PN) spreading signal (204). Further Agrawal discloses the use of a PN spreading code of 1,024 bits (col. 8, line 1). The orthogonal Walsh function is of length 4

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(col. 5, lines 30-40). PN spreading code of length 1,024 is an integer multiple of the Walsh function of length 4. Agrawal fails to disclose that the orthogonal codes comes from a set of orthogonal codes which includes a plurality of n-bit orthogonal codes, however, Ahn discloses the selection of orthogonal codes from a set of orthogonal codes which includes a plurality of n-bit orthogonal codes (col. 5, lines 36-45). Because Ahn discloses using a set of orthogonal codes has the advantage of allowing the transmission of low rate data at a high bandwidth (col. 2, lines 15-25), it would have been obvious to one skilled in the art at the time of invention to incorporate orthogonal code set as disclosed by Ahn into the invention of Agrawal.

Claim 3, Agrawal does not disclose expressly encoding of length 8 bits. However, applicant has not disclosed a code length of eight is used for a particular purpose, or solves a stated problem, but instead discloses the code length must be a power of 2, such as 4, 8 or 16 (p.8 line 15). As Agrawal discloses the use of a code length of 4, one of ordinary skill in the art would have expected Applicant's invention to perform equally well with a code length of 4.

Claim 32, Agrawal further discloses modulating the data by a quadrature phase shift keying spreader (fig. 4A, 300), and further transmitting the signal (410A).

Claim 43, Agrawal discloses generation of parallel spread spectrum data by encoding signal $s(t)$ with orthogonal codes $w_{\sim}(t)$ (fig. 2A, 202) and then spreading the encoded signal with a pseudo random (PN) spreading signal (204). Further Agrawal discloses the use of a PN spreading code of 1,024 bits (col. 8, line 1). The orthogonal Walsh function is of length 4 (col. 5, lines 30-40). PN spreading code of length 1,024 is an integer

multiple of the Walsh function of length 4. Agrawal further discloses quadrature phase-shift key modulators (QPSK, fig. 4A, 300). As well as a receiver (fig. 6, 602), a transmitter (fig. 4A, 410A), and means of recovering received data (fig. 6).

Claim 45, Agrawal further discloses encoding and spreading a data stream according to a first encoding scheme with an orthogonal Walsh encoder (fig. 4, $W_i(t)$, col. 10, lines 9-24).

Claims 47, 49, 52, Agrawal discloses spreading the encoded signal with a pseudo random (PN) spreading signal (fig. 2A, 204).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal (U.S. Patent No. 6,134,215) as applied to claim 9 above, and further in view of Schilling et al. (U.S. Patent No. 6,075,793).

Claim 10, Although Agrawal discloses transmitting data represented by Walsh codes, he fails to disclose segmenting data streams in to multiple bit data packets. However, Schilling discloses parallel spread spectrum transmission of data packets (col. 1, lines 6-9). Because of the prevalence of using data packets in transmitting parallel spread spectrum data as described by Schilling, it would be obvious to one skilled in the art at the time of invention to incorporate Schilling's data packetization into Agrawal's apparatus.

8. Claims 16, 20, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nam (U.S. Patent No. 6,937,645) in view of Ahn et al. (U.S. Patent No. 6,385,187).

Claims 16, 39, Nam discloses a communications system including receiving a parallel spread spectrum communication signal (fig. 3, ANT_N, col. 1, lines 35-40) and

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recovering a data stream from said parallel spread spectrum communications signal (fig. 3, 110). Nam fails to disclose that the orthogonal codes comes from a set of orthogonal codes which includes a plurality of n-bit orthogonal codes, however, Ahn discloses the selection of orthogonal codes from a set of orthogonal codes which includes a plurality of n-bit orthogonal codes (col. 5, lines 36-45). Because Ahn discloses using a set of orthogonal codes has the advantage of allowing the transmission of low rate data at a high bandwidth (col. 2, lines 15-25), it would have been obvious to one skilled in the art at the time of invention to incorporate orthogonal code set as disclosed by Ahn into the invention of Nam.

Claim 20, Nam further discloses receiving a parallel spread spectrum communication signal at a first receiver (fig. 1, 16) and relaying said received parallel spread spectrum communication signal to a second receiver (col. 2, lines 61-64, fig. 1, 16).

Claim 23, Nam discloses transmitting (fig. 1, 10, 18, 20) received parallel spread communication signal (fig. 1, 12) to said second receiver (fig. 1, 12). Nam fails to

disclose that the orthogonal codes comes from a set of orthogonal codes which includes a plurality of n-bit orthogonal codes, however, Ahn discloses the selection of orthogonal codes from a set of orthogonal codes which includes a plurality of n-bit orthogonal codes (col. 5, lines 36-45). Because Ahn discloses using a set of orthogonal codes has the advantage of allowing the transmission of low rate data at a high bandwidth (col. 2, lines 15-25), it would have been obvious to one skilled in the art at the time of invention to incorporate orthogonal code set as disclosed by Ahn into the invention of Nam.

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9. Claims 19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nam (U.S. Patent No. 6,937,645) and Ahn et al. (U.S. Patent No. 6,385,187) as applied to claims 16 and 20 above, and further in view of Agrawal (U.S. Patent No. 6,134,215).

Claims 19, 27, although Nam fails to disclose encoding data with n bit orthogonal codes and multiplying by an m bit spreading sequence, where m is an integer multiple of n , Agrawal discloses encoding signal $s(t)$ with orthogonal codes $w_i(t)$ (fig. 2A, 202) and then spreading the encoded signal with a pseudo random (PN) spreading signal (204). Further Agrawal discloses the use of a PN spreading code of 1,024 bits (col. 8, line 1). The orthogonal Walsh function is of length 4 (col. 5, lines 30-40). PN spreading code of length 1,024 is an integer multiple of the Walsh function of length 4. Agrawal notes the need for enabling multiple transmitter without the creation of interference (col. 2, lines 49-51). Nam discloses an object of his invention is to mitigate the interference of received signals (col. 1, lines 51-54). Because Agrawal's transmission method would reduce the creation of interference, it would be obvious to one skilled in the art at the time of invention to incorporate Agrawal's transmission method into the combined invention of Nam.

Claim Objections

10. Claim 52 is objected to because of the following informalities:

Claim 52, in line 2, *pseudo-nose* should be changed to *pseudo noise*.

Appropriate correction is required.

Allowable Subject Matter

11. Claims 11, 17, 18, 25, 26, 34, 36, 40-44, 46, 48, 50, 51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File

EMF

10/15/2006


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER